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# ***WATER SUPPLY OUTLOOK FOR WESTERN UNITED STATES***

**Including Columbia River Drainage in Canada**

Prepared by

**U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Collaborating with  
CALIFORNIA DEPARTMENT of WATER RESOURCES  
and

BRITISH COLUMBIA DEPARTMENT of  
LANDS, FORESTS and WATER RESOURCES

AS OF  
**APR. 1, 1973**

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

### PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 511 N. W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	204 E. 5th. Ave., Room 217, Anchorage, Alaska 99501
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

### PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



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**Including Columbia River Drainage in Canada**

ISSUED

APRIL 1, 1973

The Soil Conservation Service coordinates snow surveys conducted by its staff and many cooperators, including the Bureau of Reclamation, Corps of Engineers, Forest Service, National Park Service, NOAA, National Weather Service, Geological Survey, and other Federal Agencies, Departments of State Government, Irrigation Districts, Power Companies, and others.

The Department of Water Resources coordinates snow surveys in California.

The Water Resources Service, Department of Lands, Forests, and Water Resources directs snow surveys in British Columbia.

This report was prepared by the Water Supply Forecasting Unit, Engineering Division, Soil Conservation Service, from data supplied by Snow Survey Supervisors of the Soil Conservation Service in the States of Alaska, Arizona, Colorado and New Mexico, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

Data from California was supplied by the Chief, Water Supply Forecast and Snow Survey Unit, Department of Water Resources.

Data from British Columbia was supplied by the Chief, Hydrology Division, Water Investigations Branch, Department of Lands, Forests and Water Resources.

U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
KENNETH E. GRANT, ADMINISTRATOR







# WATER SUPPLY OUTLOOK

1973 SNOWMELT SEASON

APRIL 1, 1973

MOST MAJOR IRRIGATED AREAS OF THE WEST WILL HAVE REASONABLY SATISFACTORY TO EXCELLENT WATER SUPPLIES FOR IRRIGATION PURPOSES. ABOVE NORMAL RESERVOIR STORAGE TO PARTLY OFFSET LOW STREAMFLOW IN NORTHWESTERN STATES. WATER USER WITHOUT ADEQUATE STORAGE WILL EXPERIENCE SHORTAGES IN MANY AREAS OF OREGON, WASHINGTON, IDAHO, MONTANA, AND WYOMING. FROM TWICE TO OVER FIVE TIMES NORMAL STREAMFLOW EXPECTED FROM SOME WATERSHEDS IN ARIZONA, NEW MEXICO, SOUTHWEST COLORADO, UTAH, NEVADA, AND CALIFORNIA.

In many areas March weather accentuated the already existing snowpack conditions in the western states, continuing the low northwestern snowpacks while causing heavy additional build-up on southwestern watersheds. Irrigation water shortages are highly probable for many smaller areas in Oregon, Washington, central and northern Idaho, Montana and northern Wyoming, unless spring and summer months are exceptionally wet.

Fortunately, in the drier areas the carry-over storage in irrigation reservoirs is generally above average as a result of last year's heavy streamflow. To a large degree this will offset the effects of the low runoff that is anticipated this season. Critical shortages may be experienced, however, by those who obtain their water supplies by direct diversion from the streams.

March snowfall in the mountains was two to five times greater than average in many parts of Arizona, New Mexico and southern sections of Utah and Nevada, and southwestern Colorado. In the Lower Colorado River Basin, flow of streams in Arizona and from Utah's Virgin River and adjacent smaller streams is expected to be from two to over five times normal amounts. In this same southern area, the Rio Grande Basin also has one of its highest snowpacks of record. Flow of the Rio Grande and other streams in New Mexico is forecast at one and a half to over three times their normal amounts.

Snow cover in the upper Colorado River Basin is near 15 to 20 percent above normal, but ranges from a low of 77 percent on the upper Green River in Wyoming to a high of 163 percent on the Dolores River in southwest Colorado. Inflow to Lake Powell for the April-July period is forecast at 118 percent.

Outlook for the Arkansas Basin is good to excellent, with stream forecasts ranging near 10 to 15 percent above average, except on the Cucharas where the flow is expected to be about

two-thirds more than usual. Flow of the Canadian River will also be much above average.

The Great Basin will experience excellent water supplies, except for a small area in southern Oregon. Damaging high flows are possible on some streams in Utah, particularly from lower elevation watersheds.

The California Department of Water Resources, reports that adequate water supplies will be available throughout the State this year. Precipitation continued to be heavy in the central portion of the State during March and the already above normal snow water content was boosted to even greater amounts in most watersheds. Water year runoff to date has generally been above average. Reservoir storage on April 1 is average or above for this date except in the Lahontan area and in the San Joaquin Valley. Forecasts of runoff show that above average reservoir inflows will be forthcoming in all river basins.

Except in southern Idaho, extreme southeastern Oregon and northern Nevada, runoff forecasts for streams in the United States' portion of the Columbia Basin vary between about one-half to three-fourths of normal. The British Columbia Water Resources Service reports that flow of British Columbia streams will vary from about 80 to 95 percent of average, except on the Similkameen River where 60 to 65 percent of average flow is expected. Highest forecast is for 95 percent for the inflow to Duncan Reservoir.

Similar to the Columbia Basin, it is anticipated that most streams in the Missouri Basin will yield from one-half to three-fourths of normal supplies. Flow of most streams in Montana will be similar to that in the low runoff years of the early 1960's. In Wyoming, flow of the Wind River near Dubois is expected to set a new low for its period of record. March storms improved the outlook for the Black Hills from much below average, to below average.

## SUMMARY OF SNOW WATER EQUIVALENT MEASUREMENTS

APRIL 1, 1973

MAJOR BASIN AND SUB - WATERSHED	WATER EQUIVALENT IN PERCENT OF :		MAJOR BASIN AND SUB - WATERSHED	WATER EQUIVALENT IN PERCENT OF :	
	LAST YEAR	AVERAGE		LAST YEAR	AVERAGE
MISSOURI BASIN			SNAKE BASIN		
Jefferson	59	85	Snake above Jackson, Wyo.	58	77
Madison	73	86	Snake above Hiese, Idaho	59	78
Gallatin	79	85	Snake abv. American Falls Res.	66	82
Missouri Main Stem	50	72	Henry's Fork	75	87
Yellowstone	61	79	Southern Idaho Tributaries	85	120
Shoshone	53	75	Big and Little Wood	83	81
Wind	55	76	Boise	53	73
North Platte	101	106	Owyhee	120	135
South Platte	92	86	Payette	63	75
ARKANSAS BASIN			Malheur	75	75
Arkansas	106	100	Weiser	72	90
Cucharas-Purgatoire	427	163	Burnt	60	65
RIO GRANDE BASIN			Powder	60	75
Rio Grande (Colo.)	219	148	Salmon	60	75
Rio Grande (New Mexico)	810	221	Grande Ronde	35	35
Pecos	---	531	Clearwater	44	60
COLORADO BASIN			LOWER COLUMBIA BASIN		
Green (Wyo.)	54	77	Yakima	36	52
Yampa - White	98	91	Umatilla	35	45
Duchesne	123	116	John Day	65	65
Price	222	123	Deschutes - Crooked	63	68
Upper Colorado	101	96	Hood	35	45
Gunnison	144	115	Willamette	35	45
San Juan	243	141	Lewis	34	44
Dolores	302	163	Cowlitz	36	51
Virgin	872	228	PACIFIC COASTAL BASIN		
Gila	---	330	Puget Sound	38	51
Salt	---	489	Olympic Peninsula	59	65
GREAT BASIN			Umpqua - Rogue	50	65
Bear	84	102	Klamath	70	60
Logan	63	83	Trinity	215	140
Ogden	128	162	CALIFORNIA		
Weber	96	109	CENTRAL VALLEY		
Provo - Utah Lake	148	128	Upper Sacramento	145	125
Jordan	101	111	Feather	310	155
Sevier	277	156	Yuba	180	125
Walker - Carson	215	133	American	160	120
Tahoe - Truckee	162	122	Mokelumne	195	135
Humboldt	176	148	Stanislaus	210	135
Lake Co. (Oregon)	150	85	Tuolumne	190	125
Harney Basin (Oregon)	100	110	Merced	225	135
UPPER COLUMBIA BASIN			San Joaquin	255	140
Columbia (Canada)	63	88	Kings	390	175
Kootenai	52	72	Kaweah	780	195
Clark Fork	45	66	Tule	2,400	240
Bitterroot	45	70	Kern	720	180
Flathead	53	74	Owens	---	145
Spokane	36	50	Data for California Watersheds supplied by Dept. of Water Resources, and for British Columbia Watersheds by Dept. of Lands, Forests and Water Resources.		
Okanogan	54	78	Average is for 1953-67 period. California averages are for the period 1931-70. Based on Selected Snow Courses determined by Dis- tribution within the Basin, Length of Record and Repetitive Monthly Measurement Schedules.		
Methow	52	79			
Chelan	45	72			
Wenatchee	30	49			



The North Platte River will yield a near normal water supply, while the South Platte will fall 10 to 20 percent short of the usual flow.

## MISSOURI BASIN

Although near or above average snowmelt runoff is expected from the North Platte River and its tributaries in Colorado and Wyoming, and from Montana's upper Red Rock, Madison and Ruby rivers, most other streams in the Missouri River Basin are expected to yield from one-half to three-fourths of normal supplies.

Moving south from the Canadian border along the Continental Divide, the snow on the headwaters of the Milk, Marias, Teton, Sun and Dearborn rivers has one of the lowest snowpacks in recent years. Comparable to such low years as 1960, 1961 and 1963, it is only slightly more than a half of the normal pack. Snow is near three-fourths of average on the Missouri main stem, the Yellowstone and Judith-Musselshell watersheds. In contrast, a near or above average snowpack lies on the extreme headwaters of the Madison and Red Rock rivers and on the Gravelly Mountains.

In Wyoming the snow is near three-fourths average on the upper Yellowstone, Shoshone and Wind rivers, and in the Big Horn Mountains. The snowpack improved during March in the Big Horn Mountains and in the Black Hills.

On the North Platte River snow cover is slightly above average, but near 15 percent below average on the South Platte. Snowpack build-up was heavy on Wyoming's Casper Mountain and Laramie Range.

Montana's Sun, Marias, Teton, Dearborn, Belt and Musselshell rivers can be expected to flow at 40 to 60 percent of their normal amounts, comparable to low runoff of 1963. Except for the upper Red Rock, Madison and Ruby rivers, other Montana streams should yield near 60 to 80 percent of average flows.

With the exception of the upper Wind River (low runoff), and the Little Popo Agie near Lander (slightly above normal), streamflow to come from Wyoming's Clark's Fork, Shoshone, Bighorn rivers and their tributaries, as well as other streams heading in the Big Horn Mountains is expected to range from about 60 to 80 percent of average. Unless April and May precipitation is considerably above normal, this runoff will be far from adequate to meet the needs of farms and ranches that require diversion above reservoirs.

Flow of the Wind River near Dubois is expected to be an all time low for the period of record. The forecast is for a discharge of 46 percent normal.

Streams coming from Casper Mountain and the Laramie Range are expected to yield as much as double their usual flows. The main North Platte and its other tributaries will flow at near normal amounts, while the South Platte and its tributaries should produce near 10 to 20 percent less than average.

Carryover reservoir storage is 111 percent average in Montana, 83 percent average on Wyoming's Wind River, 173 on the North Platte, 128 percent on Colorado's South Platte, and 170 percent in Belle Fourche.

## ARKANSAS BASIN

Snowfall during March storms brought improvement in the runoff prospects for the main Arkansas River and the Purgatoire. Snow was particularly heavy on headwaters of the Cucharas, nearly doubling the expected runoff since last month.

If spring and summer precipitation are near normal, flow of the Arkansas at Salida should be near 13 percent above the average amount. Runoff from the Purgatoire is expected to be similar and is forecast at 9 percent above average. The heavy snowpack on the Cucharas is expected to yield near two-thirds more than its usual amount. Flow of the Canadian River in New Mexico should also be much above normal.

Storage in John Martin Reservoir is 80 percent average. In New Mexico on the Canadian River, storage in Conchas Reservoir is 90 percent of its usual amount.

Soil moisture conditions are excellent in the valleys, good in the mountains.

## RIO GRANDE BASIN

The Rio Grande Basin now has one of its highest snowpacks of record, with some snow courses showing more snow water than at any time since snow surveys were started in 1937. The snow ranges from about 50 percent above average in Colorado to over twice normal on the New Mexico tributaries. On the Pecos River it is more than five times the usual amount.

The Rio Grande near Del Norte, Colorado is expected to flow at 48 percent more than normal, while at Otowi Bridge, New Mexico it will be near two-thirds above average. Inflow to the river system from the Chama River should be near 54 percent above normal, with a little less -- 38 percent above -- expected from the Conejos River. The water yield of the Pecos River will be much higher, a little more than double its normal flow.

Carryover storage in Elephant Butte is 12

# SELECTED STREAMFLOW FORECASTS

APRIL 1, 1973

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
SASKATCHEWAN				
St. Mary near Babb, Montana <u>1/</u>	390	79	April-Sept.	
UPPER MISSOURI				
Beaverhead near Grant, Montana <u>2/</u>	80	76	April-Sept.	207
Big Hole near Melrose, Montana	480	70	April-Sept.	
Jefferson at Silver Star, Montana	590	68	April-Sept.	
Madison near Grayling, Montana <u>3/</u>	425	99	April-Sept.	626
Gallatin near Gateway, Montana	395	86	April-Sept.	
Sun at Gibson Dam, Montana <u>4/</u>	350	58	April-Sept.	749
Belt near Monarch, Montana	55	50	April-Sept.	
Marias near Shelby, Montana <u>5/</u>	260	43	April-Sept.	
Missouri near Landusky, Montana <u>6/</u>	2,450	55	April-Sept.	
near Williston, North Dakota <u>7/</u>	6,500	59	April-Sept.	
S. Fk. Musselshell above Martinsdale, Montana	93	50	April-Sept.	
Milk at Eastern Crossing, Montana	195	74	April-Sept.	
Yellowstone at Yellowstone Lake Outlet, Wyo.	585	70	April-Oct.	1,111
at Corwin Springs, Montana	1,560	83	April-Sept.	2,349
at Miles City, Montana <u>8/</u>	4,150	71	April-Sept.	
Clarks Fork near Belfry, Montana	455	78	April-Sept.	
Shoshone below Buffalo Bill Res., Wyo. <u>9/</u>	590	73	April-Sept.	894
Wind near Dubois, Wyoming	46	46	April-Sept.	150
at Riverton, Wyoming <u>10/</u>	340	52	April-Sept.	879
below Boysen Res., Wyoming <u>11/</u>	525	69	April-Sept.	
Bull Lake Creek near Lenore, Wyoming	134	75	April-Sept.	214
Little Popo Agie near Lander, Wyoming	46	108	April-Sept.	61
Tensleep near Tensleep, Wyoming	52	70	April-Sept.	92
Medicine Lodge near Hyattville, Wyoming	12.4	63	April-Sept.	22.4
Shell Creek near Shell, Wyoming	43	65	April-Sept.	81
Big Horn near St. Xavier <u>8/</u>	1,100	64	April-Sept.	2,153
Tongue near Dayton, Wyoming	85	83	April-Sept.	109
No. Fork Powder near Hazelton, Wyoming	5.9	63	April-Sept.	7.7
PLATTE				
North Platte at Saratoga, Wyoming	560	101	April-Sept.	
Encampment near Encampment, Wyoming	136	107	April-Sept.	131
Laramie Riv. & Pioneer Canal, nr Woods, Wyo. <u>12/</u>	119	101	April-Sept.	114
Big Thompson at Drake, Colorado <u>13/</u>	82	82	April-Sept.	
Clear at Golden, Colorado <u>14/</u>	95	80	April-Sept.	
St. Vrain at Lyons, Colorado <u>15/</u>	55	70	April-Sept.	
Cache La Poudre near Fort Collins, Colorado <u>16/</u>	200	93	April-Sept.	
ARKANSAS				
Arkansas at Salida, Colorado <u>17/</u>	350	113	April-Sept.	
Cutharas near LaVeta, Colorado	20	167	April-Sept.	
Purgatoire at Trinidad, Colorado	50	109	April-Sept.	
RIO GRANDE				
Rio Grande near Del Norte, Colorado <u>18/</u>	650	148	April-Sept.	
at Otowi Bridge, New Mexico <u>19/</u>	850	166	March-July	
Conejos near Mogote, Colorado <u>20/</u>	252	138	April-Sept.	
El Vado Res., Inflow, New Mexico	290	154	March-July	
Pecos at Pecos, New Mexico	87	212	March-July	
UPPER COLORADO				
Colorado, Grandby Res. Inflow, Colorado <u>21/</u>	200	91	April-Sept.	
near Dotsero, Colorado <u>22/</u>	1,400	102	April-Sept.	
near Cameo, Colorado <u>23/</u>	2,250	99	April-Sept.	
near Cisco, Utah <u>24/</u>	3,417	122	April-July	1,594
Lake Powell Inflow, Arizona <u>25/</u>	7,683	118	April-July	5,578
Roaring Fork at Glenwood Springs, Colorado <u>26/</u>	725	105	April-Sept.	
Uncompahgre at Colona, Colorado	165	128	April-Sept.	

Forecasts in California provided by Department of Water Resources.  
Average is for 1953-67 period except California. California is computed for 1921-70 period.  
Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

## SELECTED STREAMFLOW FORECASTS

APRIL 1, 1973

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
UPPER COLORADO (continued)				
Gunnison, Blue Mesa Res. Inflow, Colorado <u>27/</u>	785	102	April-Sept.	
near Grand Junction, Colorado <u>28/</u>	1,350	119	April-Sept.	
Dolores at Dolores, Colorado	335	145	April-Sept.	
Green at Warren Bridge, Wyoming	252	78	April-Sept.	431
at Green River, Wyoming <u>29/</u>	724	77	April-Sept.	1,645
Flaming Gorge Res. Inflow, Utah <u>27/</u>	955	91	April-July	1,967
at Green River, Utah <u>30/</u>	2,543	99	April-July	2,030
North Piney at Mason, Wyoming	28.2	82	April-Sept.	51
Big Sandy near Big Sandy, Wyoming	57	108	April-Sept.	82
Yampa at Steamboat Springs, Colorado	250	96	April-Sept.	
near Maybell, Colorado	800	94	April-Sept.	
Little Snake near Dixon, Wyoming	233	90	April-Sept.	
White near Meeker, Colorado	278	95	April-Sept.	
Strawberry at Duchesne, Utah <u>40/</u>	69	140	April-July	
Duchesne near Tabiona, Utah <u>31/</u>	120	127	April-July	
at Randlett, Utah <u>40/</u>	350	134	April-July	
Lakefork below Moon Lake, Utah <u>32/</u>	75	114	April-July	
Uinta near Neola, Utah	93	118	April-July	
Whiterocks near Whiterocks, Utah	58	114	April-July	
Price, Scofield Res. Inflow, Utah <u>33/</u>	43	136	April-July	19
Cottonwood near Orangeville, Utah <u>34/</u>	50	114	April-July	33
San Juan, Navajo Res. Inflow, New Mexico <u>27/</u>	950	153	April-July	259
near Bluff, Utah <u>35/</u>	1,362	153	April-July	276
Animas at Durango, Colorado	570	142	April-Sept.	
LOWER COLORADO				
Virgin near Virgin, Utah	90	237	April-June	
Little Colorado above Lyman, Arizona	21	344	April-June	0.6
Gila near Solomon, Arizona	150	434	April-May	8.1
Frisco at Clifton, Arizona	75	397	April-May	4.9
Salt at Intake, Arizona	525	431	April-May	24.6
Tonto above Roosevelt, Arizona	47	610	April-May	0.8
Verde above Horseshoe Dam, Arizona	200	400	April-May	19.1
GREAT BASIN				
Bear at Utah-Wyo. State Line	108	102	April-July	
at Harer, Idaho	260	115	April-Sept.	
Smith's Fork near Border, Wyoming	105	97	April-Sept.	175
Thomas Fork near Wyo.-Ida. State Line	29	92	April-Sept.	59
Logan near Logan, Utah <u>36/</u>	100	101	April-July	
Ogden, Pine View Res. Inflow, Utah <u>27/</u>	145	161	April-June	136
Weber near Oakley, Utah	100	108	April-June	115
Provo near Hailstone, Utah <u>37/</u>	101	117	April-July	
Strawberry Res. Inflow, Utah	55	135	April-July	38
Utah Lake Net Inflow, Utah	240	123	April-July	204
Big Cottonwood near Salt Lake City, Utah	37	109	April-July	40
Beaver near Beaver, Utah	27	144	April-July	6.4
Sevier near Hatch, Utah	65	197	April-July	
near Gunnison, Utah	55	177	April-July	
So. Fork Humboldt near Elko, Nevada	75	130	April-July	41
Humboldt at Palisades, Nevada	209	136	April-July	139
Truckee at Farad, California <u>38/</u>	310	120	April-July	164
East Carson near Gardnerville, Nevada	208	119	April-July	134
West Carson at Woodsfords, California	58	114	April-July	39
East Walker near Bridgeport, California <u>39/</u>	75	125	April-August	31
West Walker near Coleville, California	168	117	April-July	108
Donner und Blitzen near Frenchglen, Oregon	60	109	April-Sept.	
Silvies near Burns, Oregon	43	52	April-Sept.	
Chewaucan near Paisley, Oregon	50	59	April-Sept.	82
Deep above Adel, Oregon	66	101	April-Sept.	
Bidwell near Ft. Bidwell, California	12.5	109	April-July	
Owens below Long Valley Res., California	76.5	123	April-July	

Forecasts in California provided by Department of Water Resources.  
 Average is for 1953-67 period except California. California is computed for 1921-70 period.  
 Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.



## SELECTED STREAMFLOW FORECASTS

APRIL 1, 1973

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
UPPER COLUMBIA				
Columbia at Birchbank, British Columbia <u>40/</u>	41,360	89	April-Sept.	52,590
at Grand Coulee, Washington <u>40/</u>	58,500	84	April-Sept.	83,880
below Rock Island, Washington	61,900	81	April-Sept.	98,040
Kootenai at Libby, Montana	6,650	83	April-Sept.	9,929
at Leonia, Idaho	7,400	81	April-Sept.	11,041
Blackfoot near Bonner, Montana	660	66	April-Sept.	1,429
So. Fk. Flathead nr Columbia Falls, Montana <u>40/</u>	1,600	68	April-Sept.	2,850
Flathead at Columbia Falls, Montana <u>40/</u>	4,600	71	April-Sept.	7,821
near Polson, Montana <u>40/</u>	5,350	69	April-Sept.	9,182
Clark Fork above Missoula, Montana	1,260	71	April-Sept.	2,430
near Plains, Montana <u>40/</u>	8,500	68	April-Sept.	16,073
at Whitehorse Rapids, Idaho	9,400	67	April-Sept.	
Bitterroot near Darby, Montana	365	65	April-Sept.	726
Priest near Priest River, Idaho <u>41/</u>	650	71	April-July	960
Pend Oreille below Box Canyon, Washington	10,900	68	April-Sept.	
Kettle near Laurier, Washington	15,500	81	April-Sept.	
Spokane at Post Falls, Idaho <u>42/</u>	1,650	53	April-Sept.	3,971
Similkameen near Nighthawk, Washington	1,110	73	April-Sept.	3,162
Okanogan near Tonasket, Washington	1,270	73	April-Sept.	3,824
Methow near Pateros, Washington	680	65	April-Sept.	
Stehekin at Stehekin, Washington	650	72	April-Sept.	
Chelan at Chelan, Washington <u>43/</u>	875	69	April-Sept.	1,965
Wenatchee at Peshastin, Washington	1,230	68	April-Sept.	2,808
SNAKE				
Snake above Palisades Res., Wyoming <u>44/</u>	1,980	77	April-Sept.	3,504
near Heise, Idaho <u>45/</u>	3,100	83	April-Sept.	5,309
near Blackfoot, Idaho <u>46/</u>	3,200	83	April-July	6,140
at Weiser, Idaho	4,350	69	April-Sept.	8,703
Grey's above Palisade, Wyoming	355	98	April-Sept.	556
Salt above Palisade, Wyoming	330	103	April-Sept.	575
Henry's Fork near Ashton, Idaho <u>47/</u>	580	95	April-Sept.	820
Teton near St. Anthony, Idaho	385	98	April-Sept.	568
Blackfoot Reservoir Inflow, Idaho	107	105	April-Sept.	
Big Lost near MacKay, Idaho <u>48/</u>	150	89	April-Sept.	177
Portneuf at Topaz, Idaho	83	105	March-Sept.	164
Salmon Falls Creek nr San Jacinto, Idaho	80	115	March-Sept.	139
Big Wood, Inflow to Magic Res., Idaho <u>49/</u>	195	74	April-Sept.	294
Bruneau near Hot Springs, Idaho	220	115	March-Sept.	
Boise near Boise, Idaho <u>50/</u>	1,250	80	April-Sept.	2,233
Jordan near Jordan Valley, Oregon	73	87	April-July	
Owyhee near Owyhee, Nevada <u>51/</u>	72	120	April-July	86
Owyhee Res. Net Inflow, Oregon <u>27/</u>	346	115	April-Sept.	363
Malheur near Drewsey, Oregon	41	57	April-Sept.	
Payette near Horseshoe Bend, Idaho <u>52/</u>	1,475	80	April-Sept.	
Weiser above Crane Creek, Idaho <u>40/</u>	450	89	March-Sept.	
Burnt near Hereford, Oregon <u>40/</u>	17.4	50	April-Sept.	
Powder near Sumpter, Oregon	33	59	April-Sept.	
Eagle above Skull Creek, Oregon	175	96	April-Sept.	
Imnaha at Imnaha, Oregon	254	83	April-Sept.	
Salmon at Whitebird, Idaho	5,475	80	April-Sept.	
Lostine near Lostine, Oregon	95	82	April-Sept.	
Grande Ronde at LaGrande, Oregon	84	48	April-Sept.	206
Clearwater at Spalding, Idaho	5,500	64	April-Sept.	10,667
LOWER COLUMBIA				
Yakima at CleElum, Washington <u>53/</u>	540	56	April-Sept.	
near Parker, Washington <u>54/</u>	870	50	April-Sept.	
Naches near Naches, Washington <u>55/</u>	485	54	April-Sept.	

Forecasts in California provided by Department of Water Resources.

Average is for 1953-67 period except California. California is computed for 1921-70 period.

Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

## SELECTED STREAMFLOW FORECASTS

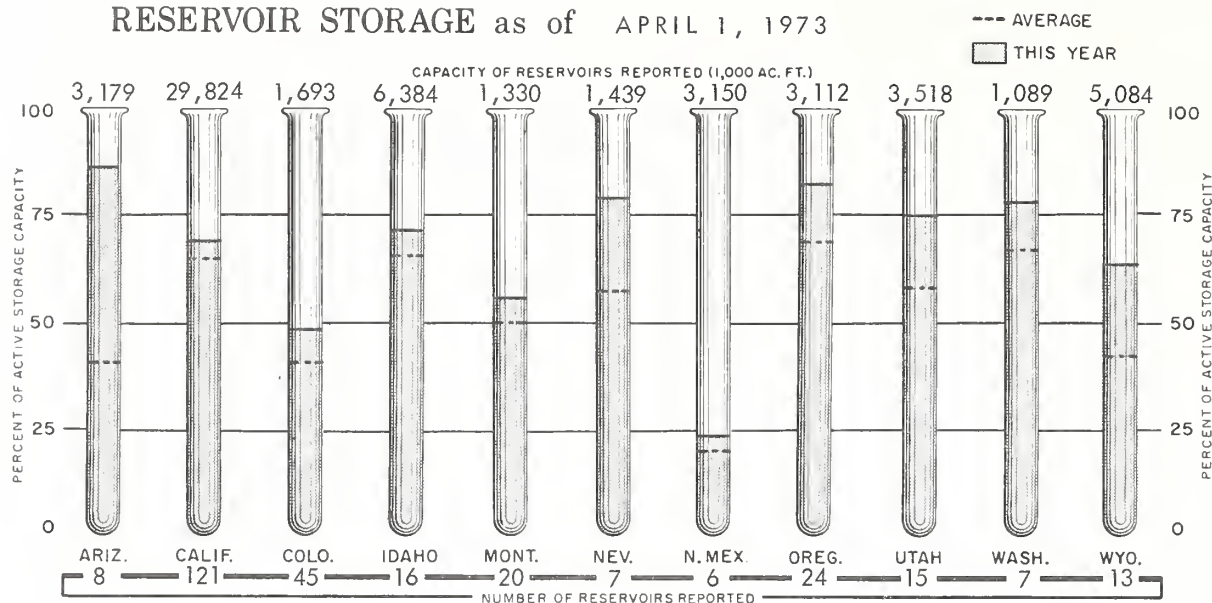
APRIL 1, 1973

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
LOWER COLUMBIA (continued)				
Walla Walla, So. Fk. near Milton, Oregon	54	80	April-Sept.	
Umatilla at Pendleton, Oregon	193	60	April-Sept.	
John Day, Middle Fork at Ritter, Oregon	73	63	April-Sept.	
North Fork at Monument, Oregon	343	59	April-Sept.	
Crooked near Post, Oregon	76	75	April-Sept.	
Deschutes at Benham Falls, Oregon <u>40/</u>	526	88	April-Sept.	
Columbia at The Dalles, Oregon <u>40/</u>	82,800	79	April-Sept.	134,620
	85,040	78	January-July	151,348
Hood near Tucker Bridge, Oregon <u>40/</u>	228	68	April-Sept.	
McKenzie near Vida, Oregon	971	73	April-Sept.	
Santiam, South, at Waterloo, Oregon	405	64	April-Sept.	
North, at Mehama, Oregon <u>40/</u>	526	64	April-Sept.	
Clackamas at Estacada, Oregon	550	69	April-Sept.	
Willamette at Salem, Oregon <u>40/</u>	3,496	67	April-Sept.	
Lewis at Ariel, Washington <u>56/</u>	850	62	April-Sept.	
Cowlitz at Castle Rock, Washington <u>57/</u>	1,920	68	April-Sept.	
NORTH PACIFIC COASTAL				
Dungeness near Sequim, Washington	125	73	April-Sept.	
Umpqua, No., near Toketee Falls, Oregon <u>40/</u>	132	75	April-Sept.	
Rogue at Raygold, Oregon	687	73	April-Sept.	
Klamath Lake, Net Inflow, Oregon	400	64	April-Sept.	599
Trinity at Lewiston, California	830	135	April-July	479
CALIFORNIA CENTRAL VALLEY <u>40/</u>				
Sacramento, Inflow to Shasta, California	1,970	111	April-July	1,621
Feather near Oroville, California	2,400	129	April-July	1,198
Yuba at Smartville, California	1,160	108	April-July	760
American, Inflow to Folsom Res., Calif.	1,450	110	April-July	916
Cosumnes at Michigan Bar, California	230	159	April-July	65
Mokelumne, Inflow to Pardee Res., Calif.	580	127	April-July	316
Stanislaus, Inflow to Melones Res., Calif.	900	125	April-July	456
Tuolumne, Inflow to Don Pedro Res., Calif.	1,450	122	April-July	722
Merced, Inflow to Exchequer Res., Calif.	770	127	April-July	371
San Joaquin, Inflow to Millerton Lake, Calif.	1,660	139	April-July	701
Kings, Inflow to Pine Flat Res., California	1,825	157	April-July	537
Kaweah, Inflow to Terminus Res., California	470	174	April-July	93
Tule, Inflow to Success Res., California	150	254	April-July	7
Kern, Inflow to Isabella Res., California	780	186	April-July	118
ALASKA				
Chena at Fairbanks, Alaska	560	126	May-June	524
Salcha near Salchaket, Alaska	610	104	May-June	699

Forecasts in California provided by Department of Water Resources.  
Average is for 1953-67 period except California. California is computed for 1921-70 period.  
Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

## RESERVOIR STORAGE as of APRIL 1, 1973



percent above average, while storage in El Vado is over six times the normal amount.

All streams in the state are expected to yield much above average flows, generally exceeding anything since 1965 and in some cases as far back as 1958. Typical of smaller streams in the southwestern part of the state is the Mimbres near Mimbres. This is expected to produce over three times its usual flow.

Mountain and valley soil moisture is excellent.

### COLORADO BASIN

Storms during March produced heavier than average snowfall on most watersheds of the Colorado River Basin. It was particularly heavy on the San Juan River, smaller streams in southern Utah and throughout Arizona in the Lower Basin. The month's precipitation in these areas generally ranged from near three to five times normal amounts.

The present snow cover is near 15 to 20 percent above average in the Upper Colorado Basin when considered as a whole. As usual, there is considerable variation within the Basin. Wyoming tributaries to the Green River hold the lightest snowpack. The snow here is about half of what it was last year and near three-fourths of average. Moving south of here into Colorado it increases to about 5 to 10 percent less than average of the Yampa, White and Upper Colorado drainages. It is above average on all other watersheds, with the Dolores River showing the greatest amount at 163 percent.

Soil moisture conditions are generally much above average.

Water supplies should be generally adequate in Wyoming in spite of the below normal runoff expected in the Upper Green River. Although the Yampa, White, Upper Colorado and Upper Gunnison rivers will yield near average to 10 percent less than average amounts, water will be adequate for most needs. Water outlook is excellent for the rest of the Basin.

Snow on the Upper Green River is expected to yield an April-July inflow to Flaming Gorge Reservoir which will be 9 percent below average. Flow at Green River, Utah should be essentially average, while at Cisco, Utah the Colorado River is forecast at 22 percent above average. Forecast for the San Juan River near Bluff, Utah is much higher, at 153 percent of average. Combined flow of these three main tributaries indicates a prospective April-July inflow to Lake Powell of 118 percent. Other streams where flows are expected to range from about a third to a half more than usual include the Animas, Dolores, Duchesne, Price and Uncompahgre rivers. Reservoir storage in the Upper Basin is good.

In the Lower Colorado Basin the Virgin River near Virgin, Utah is forecast at 237 percent average, while the Santa Clara will yield near five and a half times its usual amount. The Arizona water supply is excellent with all major storage reservoirs except San Carlos expected to fill. Water is being released from Salt River Project reservoirs to provide storage space for the snowmelt runoff. Releases are expected to continue thru April.



## STORAGE IN LARGE RESERVOIRS

APRIL 1, 1973

BASIN AND NAME OF RESERVOIR	CAPACITY (1,000 A.F.)	STORAGE (1,000 A.F.)	STORAGE PERCENT AVERAGE	BASIN AND NAME OF RESERVOIR	CAPACITY (1,000 A.F.)	STORAGE (1,000 A.F.)	STORAGE PERCENT AVERAGE
UPPER MISSOURI				UPPER COLUMBIA			
Belle Fourche	185	164	170	Chelan	676	121	72
Boysen	550	247	67	Coeur d'Alene	225	84	54
Buffalo Bill	373	170	132	Duncan	1,347	7	---
Canyon Ferry	2,043	1,462	95	Flathead	1,791	669	90
Fort Peck	19,410	16,190	147	Hungry Horse	3,428	2,029	98
Garrison	24,790	20,300	186	Kootenay	673	140	84
Hebgen	377	254	144	Lake Koocanusa	4,965	273	---
Keyhole	192	159	414	Lower Arrow	3,083	468	118
Lake Francis Case	5,816	4,193	111	Noxon Rapids	335	149	79
Lake Sharp	1,900	1,764	407	Pend Oreille	1,155	315	74
Oahe	23,630	19,167	152	Roosevelt	5,232	1,546	66
Tiber	1,347	494	77	Upper Arrow	4,061	394	46
Big Horn	1,356	893	125	LOWER COLUMBIA			
PLATTE				Cougar	155	57	---
City of Denver (5)	518	387	100	Detroit	300	111	65
Colo-Big Thompson (3)	718	525	124	Green Peter	270	151	---
Glendo	784	437	126	Hills Creek	200	85	71
Pathfinder	1,016	933	220	Lookout Point	337	66	34
Seminole	1,010	491	172	Prineville	153	131	113
ARKANSAS				Wickiup	200	200	103
Conchas	273	145	90	Yakima Res. (5)	1,066	822	115
John Martin	354	20	80	SNAKE			
RIO GRANDE				American Falls	1,700	1,115	70
Elephant Butte	2,195	373	112	Anderson Ranch	423	301	142
El vado	195	38	633	Arrowrock	287	279	118
UPPER COLORADO				Brownlee	980	584	165
Blue Mesa	830	309	---	Cascade	653	372	137
Flaming Gorge	3,749	2,894	235	Jackson	847	640	149
Navajo	1,696	973	---	Lucky Peak	278	226	183
Powell	25,002	11,966	232	Owyhee	715	703	147
Starvation	152	124	---	Palisades	1,200	911	125
LOWER COLORADO				Warm Springs	191	124	106
Havasu	619	574	103	PACIFIC COASTAL			
Mead	26,159	19,980	124	Clear Engle	2,448	2,133	97
Mohave	1,810	1,679	99	Clear Lake	440	323	129
Salt River Res. (4)	1,755	1,667	166	Nacimiento	350	306	157
San Carlos	949	665	564	Ross	1,203	734	103
Verde River Res. (2)	318	277	211	Upper Klamath	584	495	106
GREAT BASIN				CALIFORNIA CENTRAL VALLEY			
Bear	1,421	1,064	119	Almanor	1,036	726	101
Lahontan	314	263	122	Ferryessa	1,602	1,621	103
Rye Patch	179	187	221	Bullards Bar	930	538	93
Sevier Bridge	236	143	149	Folsom	1,010	642	104
Strawberry	274	185	150	Isabella	570	90	50
Tahoe	732	542	125	McClure	1,026	558	96
Utah	884	827	138	Millerton	521	479	145
Willard Bay	293	168	---	Oroville	3,484	2,982	107
				Pine Flat	1,013	584	96
				Shasta	4,500	3,986	103

Reservoir Storage Data Provided by Bureau of Reclamation, Corps of Engineers, Geological Survey, and water using organizations. Data from California and British Columbia provided by Department of Water Resources and Department of Lands, Forests and Water Resources, respectively.

Snow cover is three times average on the Gila River, five times average on the Salt, and almost nine times average on the Verde.

Salt River Project streams are predicted to produce 772,000 acre-feet during April-May, about four times average. The total January through May runoff is expected to be 1,780,000 acre-feet, or the highest yield since 1941. Flow of the Little Colorado River is also expected to be high, near three and a half times average.

## GREAT BASIN

With the exception of a few watersheds in the Bear River drainages, Oregon's Lake County and northern watersheds of the Harney Basin, all other parts of the Great Basin hold an above average snowpack. Combined with high carryover reservoir storage, this promises excellent water supplies next summer for all areas in Utah and Nevada.

In Oregon the outlook is poor for the Silvies River near Burns (forecast at 52 percent of average) and for the Chewaucan near Paisley (forecast at 59 percent). Outlook for Donner und Blitzen near Frenchglen, Oregon is better at 109 percent.

Snow cover in Utah ranges from 83 percent on the Logan River in the north to seven times average on Scholl Creek above Enterprise Reservoir in the south. Snow, that would have normally melted by mid-March, remains at low elevations in central and southern sections of Utah. Utah's Ogden River and Oquirrh Mountains hold double their normal snowpack. A number of the snow courses in both states have set new record high readings.

In Nevada water users on the Humboldt River can anticipate the flow at Palisade to be slightly more than a third above average. On the lower Humboldt, storage in Rye Patch Reservoir completely full (221 percent of average) and storing above normal capacity behind flash boards. Water supplies this summer will be excellent, with heavy carryover for next year.

The Truckee, Carson and Walker rivers are generally forecast to flow 115 to 130 percent of average amounts. Streams in the Surprise Valley area should yield 10 to 40 percent more than their normal quantities. The watershed near Austin has the most snow measured since records began in 1941. Near Ely the snow is 145 percent, while near Las Vegas it is 286 percent normal. Nevada's reservoirs now hold storage which is 37 percent above average.

Forecasts for Utah streams range from near average for the Logan River in the north to two to over five times average for some southern watersheds. Storage in Utah's irrigation

reservoirs is 129 percent of average. The U.S. Geological Survey reports that Great Salt Lake is 8.95 feet higher than the all time low measured in October 1963 and is the highest it has been since July 1953. It will continue its rise with this year's snowmelt runoff.

Outlook for California's Owens Valley continues very good, with the Owens River forecast to yield nearly a fourth more than normal.

Areas where the snowpacks are exceptionally heavy will need to take extra precautions to prevent undue damage from the snowmelt water.

## COLUMBIA BASIN

Although March snowfall was below normal in much of Oregon, Washington and western Montana, it was near or slightly above normal on major water producing areas of British Columbia and Idaho.

Snow cover now ranges between about 40 to 90 percent of normal, except in southern Idaho where most watersheds hold normal to a third above normal amounts. A few small isolated areas in southeastern Oregon and northwestern Nevada have snow which goes as high as twice normal. However, these are generally at low elevations.

Fortunately, as reported by The British Columbia Water Resources Service, in the main water producing areas of British Columbia the snow is more favorable than in most of the principle water producing areas south of the International boundary. Snow ranges from about 85 to 90 percent average on British Columbia's upper and lower Columbia, and on the west Kootenay. It is less favorable on the Similkameen, Kettle and East Kootenay, being near or slightly above 70 percent.

Lowest snow cover in the Basin was measured on the Palouse River, at 17 percent of average. Snow is near half of average along the Cascade Mountains in Oregon, northward into Washington as far as the Wenatchee River, on Oregon's lower John Day and Umatilla rivers and on Idaho's Spokane River.

The snowpack is near 60 to 80 percent across northern Washington, Idaho's Priest River and on all of western Montana. This snow belt then swings southwest across the Clearwater, Salmon, Payette, Big and Little Lost, Big Wood and Boise rivers in Idaho. In Oregon it extends from the Imnaha to the Malheur and includes the upper John Day, the Crooked and upper Deschutes rivers. Wyoming's part of the Snake River is also included.

As indicated by the snowpack, streamflow prospects for the coming spring and summer are

among the lowest in recent years. Storage in irrigation reservoirs remains above normal and will generally supply adequate water for those having access to them. Water users dependent on direct streamflow will experience definite shortages during the summer and especially during the late summer unless abnormally heavy rains come at that time.

Runoff forecasts range from about one-half average on streams such as the Yakima, Spokane, Grande Ronde and Burnt rivers, to two-thirds or three-fourths of average for most other streams. Most southern tributaries to the Snake River should yield near 5 to 20 percent above their usual amounts.

Flow of the Columbia River at The Dalles is expected to be about three-fourths of its normal amount.

Because of the low streamflow, some power reservoirs are not expected to fill. The amount of electric water power production is expected to be adversely affected.

## ALASKA

March snowfall over most of the State's watersheds, where snow surveys are conducted, was near average. The result is that mountain snowpacks are generally unchanged when compared to normal.

The Long River drainage at Snettishan Project near Juneau is the one notable exception. Heavy March precipitation has boosted the snowpack above last year's record breaking level. This area is now at 126 percent of normal - the most measured in eight years of surveys.

Elsewhere the Copper and Kuskokwim rivers have the state's lowest snowpack at 65 and 68 percent of normal, respectively. Snow cover on the Upper Yukon is near average, as it also is on streams draining into Upper Cook Inlet. The Susitna River snowpack is now 13 percent above normal.

## CALIFORNIA

The California Department of Water Resources, coordinating agency for snow surveys and water supply forecasting in California, reports that April snow surveys indicate 1973 will be a year with more than adequate water supplies in nearly all areas of the State. The continuation through March of cool, wet weather has increased snow stored water to well above average amounts in all watersheds.

Precipitation during March favored the central portion of the State with heaviest amounts recorded in the Lower San Joaquin Valley and South Coastal areas. Storm waves were persist-

ent during the month, but followed erratic patterns over California. Storm tracks seemed to concentrate more along the coastal and central areas of the State producing heavy amounts of precipitation in the form of snow at mid-elevations in these areas. Below normal precipitation was experienced over the Lahontan area and the Northern Sierra. For the six-month water year to date, only the North Coastal area has not received normal precipitation.

Snow water content ranges from average in the Shasta River Basin of the North Coastal area to an impressive 250 percent of average in the mid-elevations of the Kaweah River's snow zone. Snow accumulation has favored the lower elevations and snow water content in the Kern, Kaweah, Kings, and Tule River Basins is greater in percentage of normal than at the higher elevations. Snow densities throughout the Sierra are comparatively light for this date, averaging 35 to 40 percent density and indicating that some pack "ripening" must occur before sustained snowmelt commences.

Runoff in March was slightly above average on a statewide basis but varied widely in amount due to the uneven precipitation patterns. The varied amount of runoff is illustrated by comparing the Lahontan area which produced only 75 percent of average March runoff to the Central Coastal area where runoff for the month approached 200 percent of average. The unusually heavy deposition of snow in the 6,000 to 8,000 mid-elevation band may melt away rapidly if extended periods of warm weather occur. Rapid snowmelt could produce peak runoffs and flooding conditions along the smaller east side streams of the Southern San Joaquin Valley.

Reservoir storage in 121 of California's major reservoirs was average for April 1. However, this statewide value is influenced by much above average storage in all coastal reservoirs. Sacramento Valley reservoirs are storing average amounts for this date and reservoirs in the San Joaquin Valley are now storing 90 percent of average April 1 amounts. Adequate storage space to control expected snowmelt runoff is available in all reservoirs and a general improvement in Central Valley storage is expected as warm weather begins. Storage in Colorado River reservoirs is 125 percent of average for April 1.

Forecasts of water supplies for California are presently calling for about 125 percent of average water year amounts. All river basins will produce at least average runoff. In the Central Valley the forecast values range from 115 percent of average for the Pit River inflow to Shasta Lake, to 195 percent of average for the Tule River inflow to Success Reservoir.





# EXPLANATION of STREAMFLOW FORECASTS

All flows are observed flows except as adjusted for: 1/ Storage change in Lake Sherburne. 2/ Storage change in Lima and Clark Canyon reservoirs. 3/ Storage change in Hebgen Lake. 4/ Storage change in Gibson Reservoir and measured diversions. 5/ Storage change in Two Medicine, Four Horns, Lake Francis and Swift reservoirs. 6/ Storage change in Canyon Ferry and Tiber reservoirs. 7/ Changes as indicated in (6/), (8/), plus storage change in Fort Peck. 8/ Storage change in Boysen, Buffalo Bill and Yellowtail reservoirs. 9/ Storage change in Buffalo Bill Reservoir plus Heart Mountain diversion. 10/ Storage change in Pilot Butte and Bull Lake reservoirs plus Wyoming canal diversion.

11/ Changes indicated in (10/) plus storage change in Boysen Reservoir. 12/ Plus diversions to Cache LaPoudre. 13/ Plus by-pass to power plants. 14/ Minus diversion thru Gumlick Tunnel. 15/ Storage change in Price Reservoir. 16/ Minus diversions from North Platte, Laramie and Colorado rivers plus measured diversions above station. 17/ Storage change in Clear Creek, Twin Lakes and Turquoise reservoirs minus diversions from Colorado River. 18/ Storage change in Rio Grande, Santa Maria and Continental reservoirs. 19/ Storage change in El Vado and Abiquiu reservoirs. 20/ Storage change in Platoro Reservoir.

21/ Storage change in Grandby Reservoir as furnished by U.S.B.R. plus diversions by Adams Tunnel and Grand River Ditch. 22/ Changes as indicated in (21/) plus diversions thru Roberts, Gumlick and Moffat tunnels and storage change in Dillon, Homestake, Williams Fork, Green Mountain and Willow Creek reservoirs. 23/ Changes indicated in (22/) and (26/). 24/ Storage change in Blue Mesa Reservoir. 25/ Changes indicated in (24/), (30/) and (35/) and storage change in Lake Powell. 26/ Diversions to Arkansas River plus storage change in Ruedi Reservoir. 27/ (Inflow record as computed by U. S. Bureau of Reclamation.) 28/ Storage change in Taylor, Blue Mesa and Morrow Point reservoirs. 29/ Storage change in Fontenelle Reservoir. 30/ Storage change in Flaming Gorge Reservoir.

31/ Plus diversion through Duchesne Tunnel. 32/ Storage change in Moon Lake Reservoir. 33/ Storage change in Scofield Reservoir. 34/ Storage change in Joe's Valley Reservoir. 35/ Storage change in Navajo Reservoir. 36/ Plus U. P. & L. Co. tailrace and Logan, Hyde Park and Smithfield canals. 37/ Minus diversions thru Duchesne Tunnel and Weber-Provo Canal. 38/ Storage change in Lake Tahoe and Boca reservoirs (Forecast by Truckee Basin Committee.) 39/ Storage change in Bridgeport Reservoir. 40/ Corrected for major upstream impairments -- represents simulated natural flow conditions.

41/ Storage change in Priest Lake. 42/ Storage change in Coeur d'Alene Lake and diversions by Spokane Valley Farms Co. and Rathrum Prairie canals. 43/ Storage change in Lake Chelan. 44/ Storage change in Jackson Lake. 45/ Storage change in Jackson Lake and Palisade reservoirs. 46/ Storage change in Jackson Lake, Palisades, Island Park, Henry's Lake, Grassy Lake plus diversions between Heise and Blackfoot. 47/ Storage change in Henry's Lake and Island Park reservoirs. 48/ Storage change in MacKay Reservoir and diversion in Sharp Ditch. 49/ Combined flow Big Wood near Bellevue and Camas Creek near Blaine. 50/ Storage change in Arrowrock, Anderson Ranch and Lucky Peak reservoirs.

51/ Storage change in Wild Horse Reservoir. 52/ Storage change in Cascade and Deadwood reservoirs. 53/ Storage change in Keechelus, Kachess and CleElum reservoirs plus diversion by Kittitas Canal. 54/ Changes indicated in (52/) plus storage change in Bumping and Rimrock Lakes plus diversion by Roza, Union Gap, New Reservation, Old Reservation and Sunrise canals. 55/ Storage change in Bumping and Rimrock lakes and diversions by Tieton, Selah Valley, Wapatox canals and City of Yakima. 56/ Storage change in Merwin, Yale and Swift reservoirs. 57/ Storage change in Mayfield Reservoir.

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